# *Avrainvillea amadelpha*

(Montagne) A. Gepp & E. Gepp 1908

**In sandy, shallow habitats of Mamala Bay in O'ahu, *Avrainvillea amadelpha* has formed thick communities that cover the substrate, invading and out competing other algae and our native seagrass.**

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| **Division** | Chlorophyta |
| **Class** | Chlorophyceae |
| **Order** | Bryopsidales |
| **Family** | Udoteaceae |
| **Genus** | *Avrainvillea* |


## Identifying Features

### DESCRIPTION

Plant consists of one to four wedge shaped blades that are thin, diaphanous, 1 - 4 cm wide, and 1 - 3 cm tall. Each blade is attached by stipe, 0.4 - 1.5 cm long, to compact basal holdfast. Blades are asymmetrical, surfaces felt-like, margins smooth to lacerated. Stipe is flattened in cross section.

Plants may be found singly or in clumps of many blades. In larger, more mature communities, other macroalgae will be found attached to blades.

### COLOR

Green to green-gray. clumps are often covered with silty sand, appearing muddy brown.

## Structural

Siphonous; cylindrical siphons 10-12 µm in diameter throughout the thallus. Non-tapering to slightly tapering, haphazardly oriented at blade margin. Range in color from transparent to green, with rare brown plug-like inclusions. If constricted, siphons' dichotomies deeply constricted just above branch, less than 1/2 siphon's diam. and length equal to siphon diam. Apices rounded to slightly clavate (club shaped).

## Habitat

*Avrainvillea amadelpha* is abundant in habitats of shallow, sandy substrate with low water motion. Forms dense clumps often covered with silt and sand. Overgrows coral rubble. Found from 1 to at least 10 meters deep.

## Distribution

### HAWAI'I

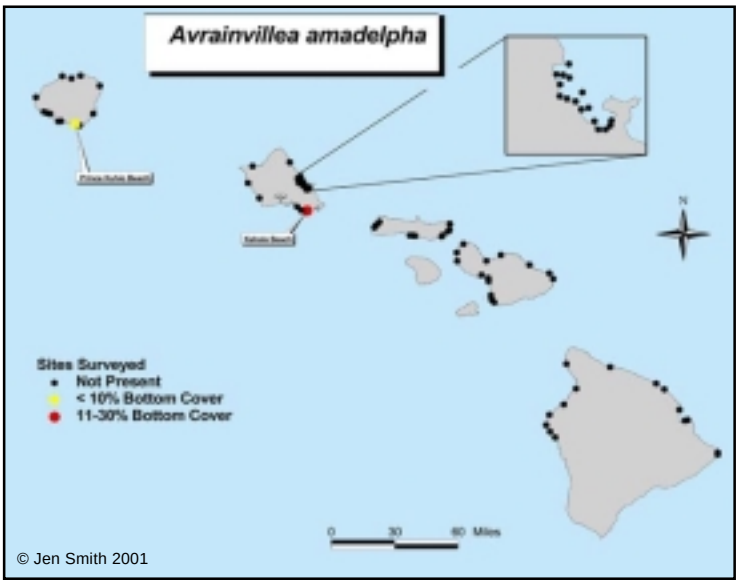
O'ahu: Kahe Point, Koko Head, Waikiki area, Diamond Head.

### WORLDWIDE DISTRIBUTION

Mauritius, Tuamotus, Fiji, Philippines.

### MECHANISM OF INTRODUCTION

First identified in shallow water locales at Kahe Point and Koko Head. Thought to have arrived sometime after 1981. Deep water populations collected by Hodgson at 40 ft in Waikiki. Mechanism of introduction not known.




## Ecology/Impact

*Avrainvillea amadelpha* is apparently a fairly recent introduction to Hawai'i. In established communities, this green alga has invaded and now covers a large part of the substrate, becoming a secondary substrate for other reef algae. Growth proceeds from the basal region rather than from the blades, so plants are usually in tight clusters of single blade height.

First found in 1981 on the leeward shore of O'ahu, it is now found in large communities with *Acanthophora spicifera* along the southern shore of O'ahu. Sandy bays once known for large native seagrass beds, (*Halophila hawaiiana*) are now overgrown with these invasive species. This alga's closely packed blades trap sediments and provide habitat for filter feeders such as worms and molluscs. With enough time, these trapped sediments added fine silt to the sandy bottom and create a mud layer upon the sand, thus changing the nature of the substrate.

## References

Brostoff, W.N., 1989. *Avrainvillea amadelpha* (Codiales, Chlorophyta) from O'ahu, Hawai'i. Pacific Science 43(2):166-169.

Littler, Mark M. and Diane S. Littler, 1999. Blade abandonment/proliferation: A novel mechanism for rapid epiphyte control in marine macrophytes. Ecology 80:1736-1746.

### WEB PAGES

Marine Invasives in Hawai'i. http://www.botany.hawaii.edu/Invasive/default.htm

Ecological Success of Alien/Invasive Algae in Hawai'i. http://www.botany.hawaii.edu/GradStud/smith/websites/ALIEN-HOME.htm

Virtual Herbarium. http://www.botany.hawaii.edu/reefalgae/greenskey.htm